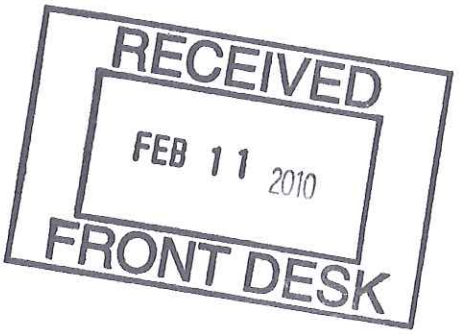
North Route Citizens Alliance



February 11, 2010

Scott J. Hylla
Chairman, North Route Citizen's Alliance
12385 County Road 5
Holdingford, MN 56340
(320)363-8138

Mr. David Birkholz
OES Permitting Staff Manager
Minnesota Department of Commerce, Office of Energy Security
85 7th Place East, Suite 500
St. Paul, MN 55101

Re: CAPX2020 Fargo to St. Cloud Transmission Route; NoRCA Executive Summary and Analysis

Docket #: E002/TL-09-1056

Dear Mr. Birkholz,

Enclosed is the official North Route Citizens Alliance (NoRCA) Executive Summary and Analysis pertaining to the CAPX2020 Fargo to St. Cloud HVTL project.

The Executive Summary and Analysis is a comprehensive review of the Alternatives to the currently proposed routes from the Melrose to South St, Cloud portion of the overall project, as well as an overview of the important impacts and issues identified by NoRCA.

We request that the NoRCA Executive Summary and Analysis be included in the OES Public Comments.

Thank you.

Sincerely,

Scott J. Hylla
Chairman

Cc: NoRCA Executive Committee

CAPX2020 Fargo to St. Cloud High Voltage Transmission Line Project

(Melrose to South St. Cloud Portion)

Executive Summary & Analysis

Prepared by:
North Route Citizens Alliance (NoRCA)
12385 County Road 5
Holdingford, MN 56340
Phone: (320)363-8138
Email: northroutecitizensalliance@gmail.com
Web site: norca.wordpress.com

February 10, 2010

Contents

Executive Summary

INTRODUCTION

The North Route Citizen's Alliance, NoRCA, is a community-based coalition of over 200 concerned stakeholders affected by the proposed 345kV High Voltage Transmission Line to traverse Central and Northern Stearns County, known as the Preferred and Alternate A "North" Routes. NoRCA has researched, analyzed and identified several important issues pertaining to the proposed Preferred and Alternate A North Routes. NoRCA's position is consistent with the issues pertaining to the rights of private property owners in the situations involving Eminant Domain. This document presents the results of this research and is intended to give NoRCA members, Minnesota policy-makers and agencies, media outlets and other concerned citizens a sense of the HVTL's impacts on this unique area and NoRCA's Position Policy.

PROJECT DESCRIPTION

The proposed 345 kV facilities brought by the Fargo to Monticello 345 kV Project will help improve the reliability of the bulk electric system serving Minnesota and portions of neighboring states. Additionally, the project provides a necessary 345 kV connection to the existing 345 kV network that will help facilitate additional generation development, (primarily Alternative Energy Sources in the form of Wind-Power) in eastern North Dakota and western Minnesota. Finally, the Fargo to Monticello 345 kV Project will address significant load serving issues in the St. Cloud area and the southern Red River Valley, including Alexandria.

The Fargo to Monticello 345 kV Project is one of four transmission projects proposed by the CapX2020 utilities (CapX2020), an effort by 11 transmission-owning utilities to bolster the energy requirements of Minnesota. The transmission infrastructure will assist in the compliance of one of the nation's most aggressive Alternative Energy Mandates set forth by the state of Minnesota legislature (known as Renewable Energy Standards or RES). Minnesota's state RES is a mandate for 25% Alternative Energy by 2025 (Xcel Energy Mandates = 25% Wind by 2020). The primary utilities involved in the construction of the Fargo to St. Cloud HVTL include: Great River Energy , Minnesota Power , Missouri River Energy Services, Northern States Power Company (XCEL Energy).

The Project consists of a proposed 345 kV transmission line between a new substation, the Quarry Substation, to be located west of the city of St. Cloud, along Hwy 23 and I-94, and a proposed substation to be located west of Fargo, North Dakota, the Bison Substation.

The project consists of an identified Preferred Route, Preferred Route Segment Alternatives and an Alternate A Route. The Preferred Route Segment Alternatives consist of slight deviations to the Preferred Route in certain areas to accommodate specific locations which may be problematic to the construction of a HVTL. The Preferred Route is approximately 179 miles in length and utilizes the Interstate 94 corridor, with it's existing Transmission Line rights of way and easements, for nearly ¾'s of the route's length. The Alternate A Route is approximately 169 miles in length and traverses rural areas of western and central Minnesota. The estimated total construction cost of the CAPX2020 Fargo to St. Cloud project is $269-309 Million.

Preferred "North" Route

The current CAPX2020 proposed preferred "North" Route diverts from the I-94 corridor in the Freeport area and proceeds to intersect nearly 39 miles of the rural and agricultural countryside of central Stearns County, converging with I-94 in South St. Cloud (Figure 1).

Alternate A "North" Route

The current CAPX2020 proposed Alternate A "North" Route diverts from the I-94 corridor just west of the Melrose area and proceeds to intersect over 42 miles of the rural and agricultural countryside of northern Stearns County, converging with I-94 in South St. Cloud. The Alternate A "North" Route is also a consideration as a Preferred segment alternative (Figure 1)

Figure 1

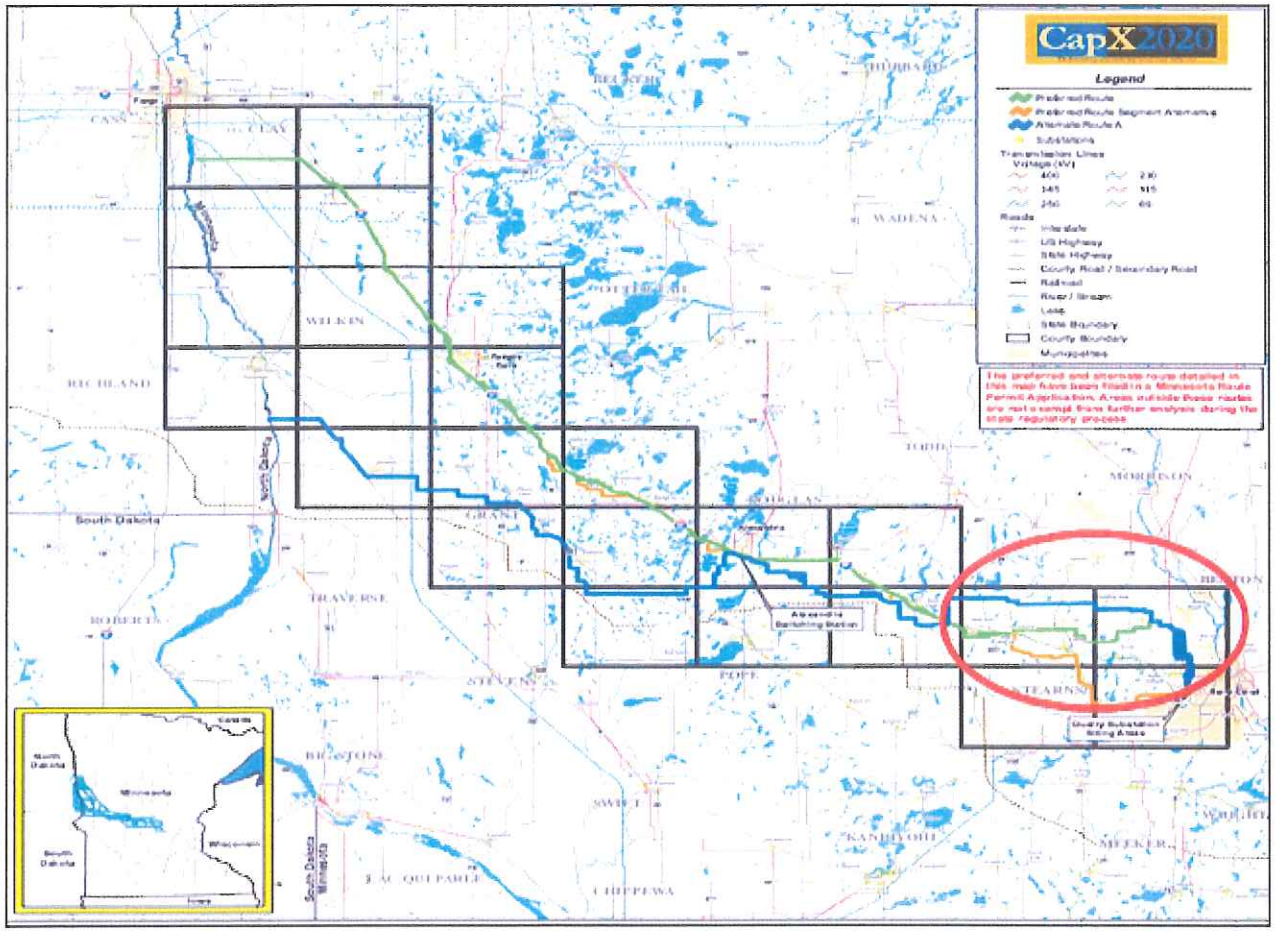
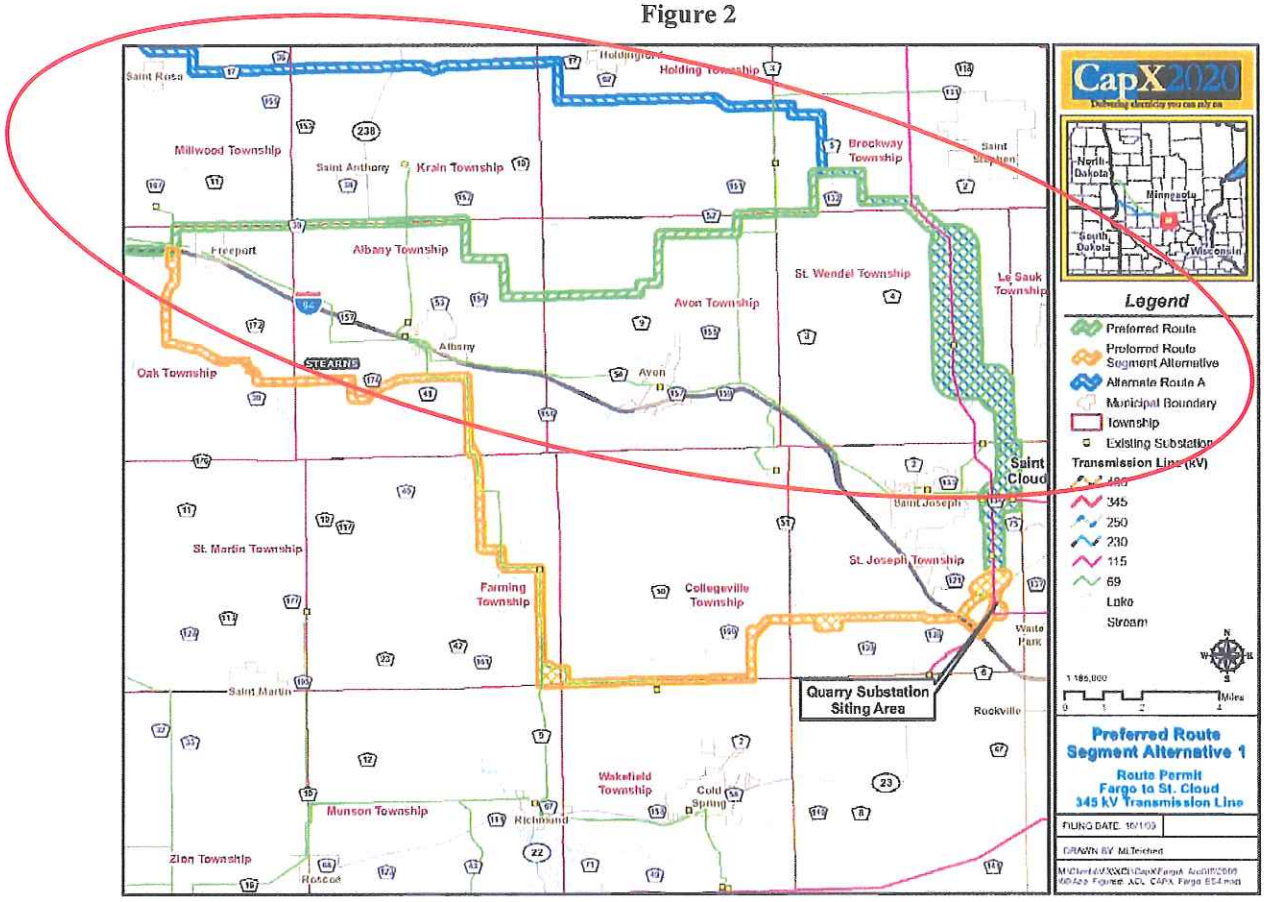

CapX2020
Legend
Preferred Route
Preferred Route Segment Alternative
Alternate Route A
Substations
Transmission Lines
Voltage (kV)
Roads
Interstate
US Highway
State Highway
County Road / Secondary Road
Railroad
River / Stream
Lake
State Boundary
County Boundary
Municipalities
The preferred and alternate route detailed in this map have been filed in a Minnesota Route Permit Application. Areas outside these routes are not exempt from further analysis during the state regulatory process
WILKIN
RICHLAND
South Dakota
TRAVERSE
GRANT
STEVENS
POPE
STEARNS
BIG STONE
SWIFT
KANDIYOHI
MEEKER
CHIPPEWA
LAC QUI PARLE
WADENA
TODD
MORRISON
Alexandria Switching Station
County Substation Siting Areas

Figure 2


CapX2020
Legend
Preferred Route
Preferred Route Segment Alternative
Alternate Route A
Municipal Boundary
Township
Existing Substation
Transmission Line (kV)
345
250
230
115
69
Lake
Stream
Quarry Substation Siting Area
Preferred Route Segment Alternative 1
Route Permit Fargo to St. Cloud 345 kV Transmission Line
Millwood Township
Krain Township
Brockway Township
Freeport
Albany Township
Avon Township
St. Wendel Township
Le Sauk Township
Oak Township
Albany
Avon
Saint Cloud
St. Martin Township
Farming Township
Collegeville Township
St. Joseph Township
Saint Martin
Rockville
Wakefield Township
Cold Spring
Munson Township
Richmond
Zion Township
STEARNS

EXECUTIVE SUMMARY

ALTERNATIVES to CURRENT PROPOSALS

The interests of the North Route Citizen's Alliance are not to oppose or prohibit the development of new energy infrastructure, as we understand the need for enhancements to the electrical grid. Rather, our concerns are strictly related to the placement of these HVTL's and the current proposed routes and alternatives in the Melrose to South St. Cloud portion of the CAPX2020 Fargo to St. Cloud HVTL project.

To comply with Minnesota's Policy on Non-Proliferation and to mitigate and avoid the significant issues of the currently proposed routes outlined in this report, NoRCA is recommending the study of the following route alternatives to be included for analysis in the CAPX2020 Fargo to St. Cloud HVTL project, and it's Environmental Impact Study.

The Interstate I 94 corridor as a Prudent & Feasible Alternative Route

- **Route Alternative 1**: The inclusion of Interstate 94 in the Environmental Impact Study, from Freeport to St. Cloud as an alternative route, with slight route detours or modifications, including short-distance (1-3 miles) under-grounding, to accommodate high-population density or problematic areas. Priority under-grounding and alternatives should be relegated to the Avon area, particularly through or around the Rest Areas and through the Spunk Lakes Narrows and Avon City Limits.

  Potential detours to accommodate other problematic areas include:
  A. County Road 54 through the city of Avon with short-distance (2 miles) under-grounding through the Spunk lakes Narrows and Avon City Limits.
  B. Norway Road/County Road 54 past St. John's Abbey & University.
  C. Paralleling an existing 69kV transmission line along I-94
  D. Wobegon Trail

  Existing Rights of Way and Accommodations afforded by Interstate 94 should be highly considered. ***See Map 1***

Locating an Alternative Route in the least "harmful" location of Stearns County

- **Route Alternative 2**: The inclusion in the Environmental Impact Study of an alternative route proposed by the Freeport to St. Cloud Advisory Task Force. This route utilizes Highway 71, South of Sauk Centre to Highway 23 and East to the South St. Cloud Quarry Sub-station. Also, there should be slight detours or modifications included and analyzed in problematic areas. Segment Alternatives include:

  A. County Road 4 from I-94 to County Road 12 to Highway 23 near Richmond.
  B. County Road 12 from I-94 (New Munich) to Highway 23 near Richmond.
  C. Potential short-distance detours should be analyzed in the potentially problematic areas of Richmond and Cold Spring.

This route and its alternatives utilize existing rights of way, such as roads and existing transmission corridors, to the fullest extent possible to comply with Minnesota's Policy on Non-Proliferation. ***See Map 2***

Under-Grounding

The use of under-grounding or 'burying" of HVTL's, especially in geographic areas with sensitive environments and ecologies, scenic viewpoints, and problematic Rights of Way concerns have been utilized in other projects. A HVTL project in Chisago County utilized HVTL under-grounding to avoid the sensitive and scenic areas of the St. Croix River. Under the State of Connecticut Law, new construction of HVTL's in urban areas must utilize under-grounding to minimize affects on human settlements and reduce EMF exposure in buffer zones near residential areas, schools and playgrounds. Technologies, such as under-ground "Super-conductors", provide for high-efficiency, high-voltage electrical transmission, 0% EMF exposure and minimize required rights-of-way (25 feet vs.150 feet). Additionally, under-grounding offers minimal impact on area aesthetics and avoids the contentious battles between citizens, townships and cities pertaining to HVTL placements.

There has been a growing debate as to the exact costs associated with the Under-grounding of HVTL's vs. traditional overhead HVTL's. According to the CAPX2020 applicants, the costs associated with under-grounding are 7-10 times the cost of traditional overhead HVTL's. However, in a recent conversation with an "Under-Grounding Contractor", the relative costs associated with Under-grounding a short-distance (1-3 miles) HVTL in this particular project would most likely be "3-5 times the cost" of a traditional HVTL's. This is due primarily to the level land associated with the project and the lack of additional complexities. As well, the capability of 345-500kV under-grounding exists, as has been demonstrated in other under-grounding projects in the U.S. and worldwide.

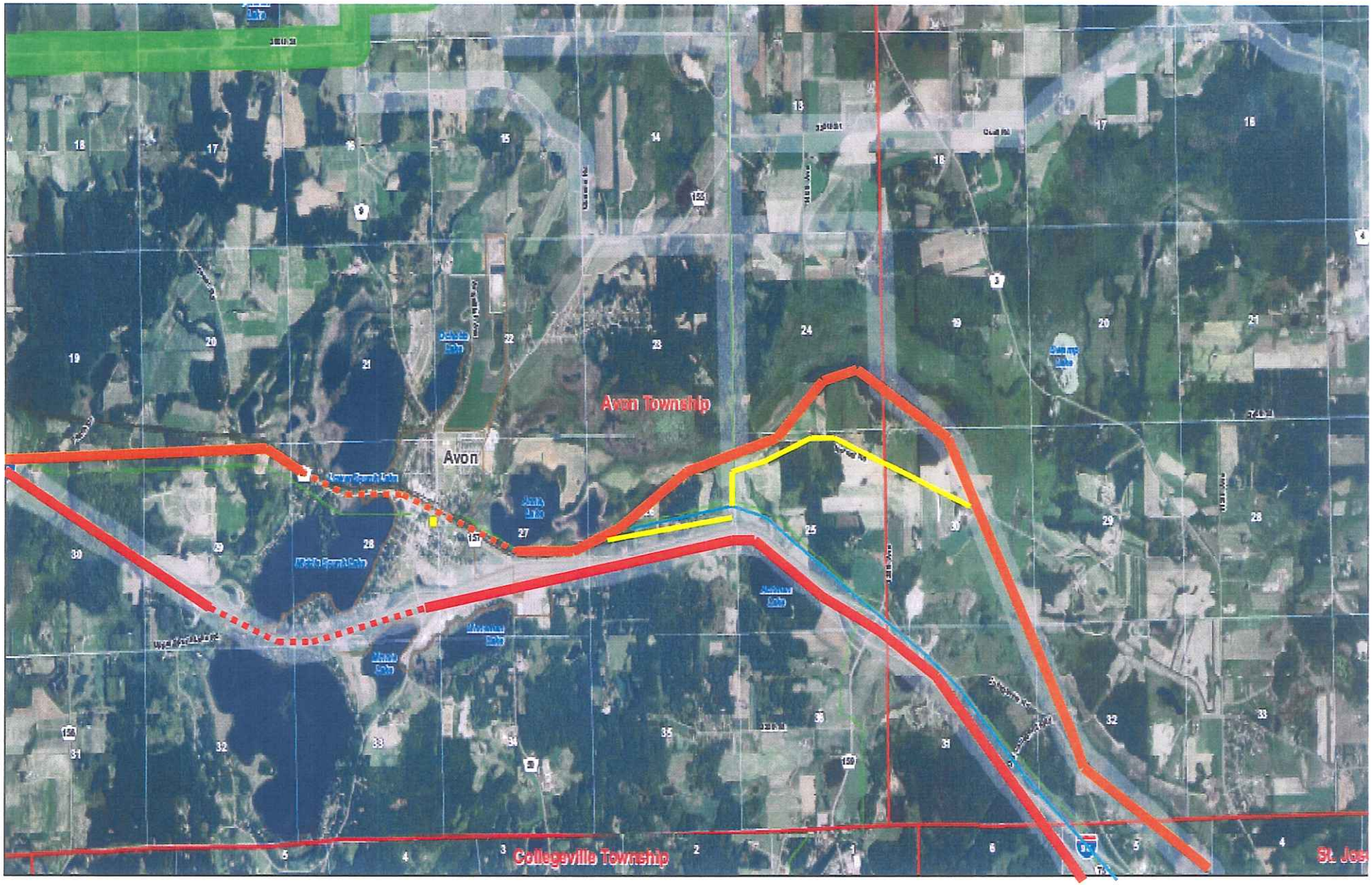
The utilization of under-grounding should be considered, at least for short-distances in problematic areas, such as the Avon area, as part of the Melrose to South St. Cloud portion of the CAPX2020 Fargo to St. Cloud HVTL project. To determine the viability and feasibility of under-grounding in this project, NoRCA has requested from the Office of Energy Security; Department of Commerce a complete detailed analysis of all under-grounding projects completed by the applicants. ***See Request and the example Under-Grounding Project Analysis***

Also, the relative costs associated with the project's additional project and construction requirements should be considered vs. the costs of under-grounding. For example, the comparative distance between the Preferred North Route and the comparable portion of Interstate 94 is approximately 13 miles. With an estimated construction cost of $1.5M per mile, that's an additional $19.5M. As well, the construction costs associated with an Angle-Pole structure vs. a Tangent-Pole structure is roughly 3 times more expensive. The Preferred North Route would require 17 Angle/corner-pole structures

Postpone Powerline Project Permit Approval & Require Further Agency Analysis

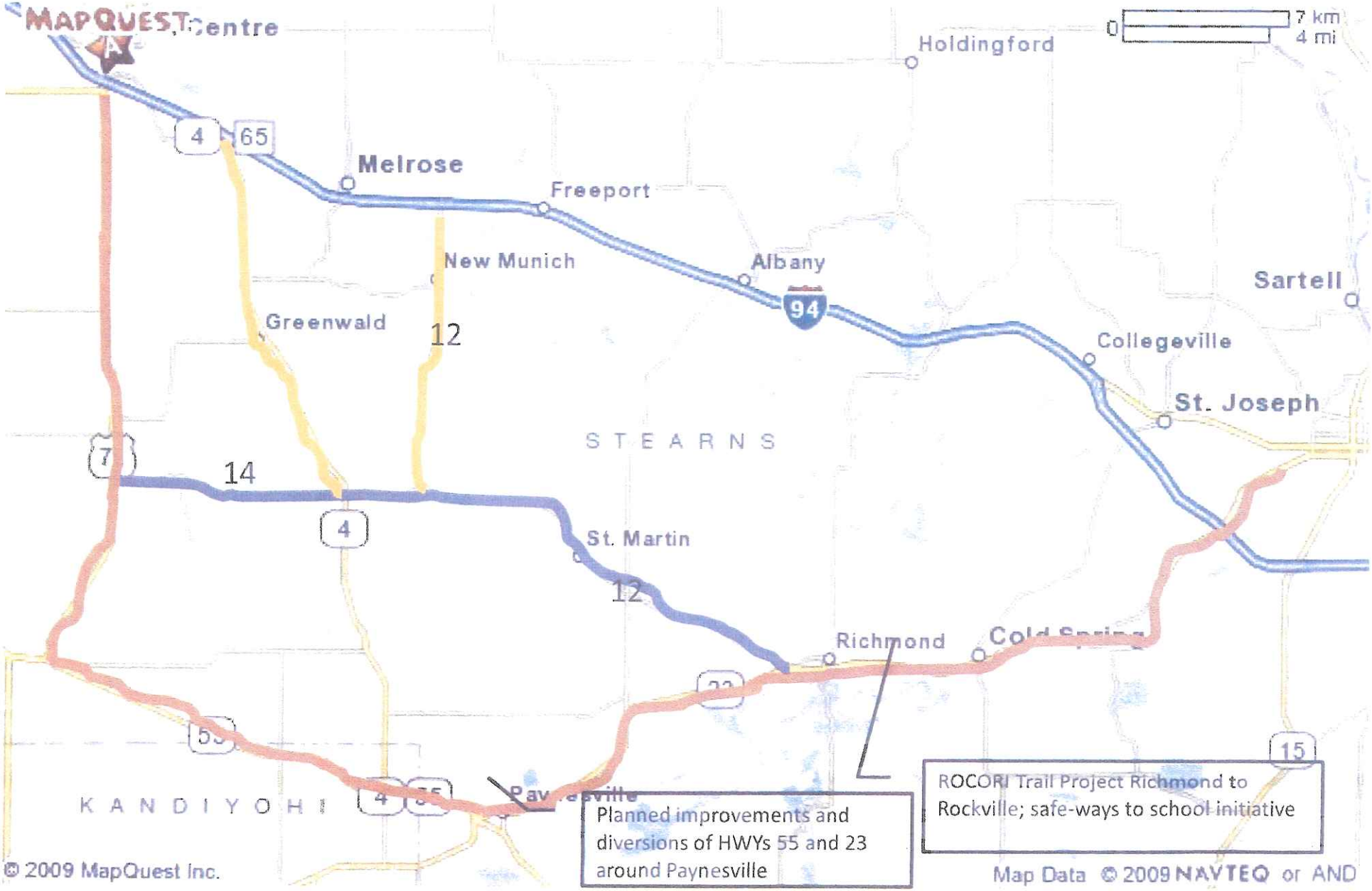
Given the growing discontent amongst landowners in the area, and the significant issues raised by multiple organizations, municipalities and state agencies. If suitable and mutual consensus cannot be reached, NoRCA recommends the postponement of the CAPX2020 HVTL Transmission Line project until further review of the issues can be established.

Alternative Route 1 – Interstate 94



Alternative Route 2

Citizens Advisory Task Force, CAPX 2020 routing permit – Fargo to St. Cloud: Route Alternatives



North Route Citizens Alliance

North Route Citizen's Alliance (NoRCA) Information Request

Date: Wednesday, February 10, 2010

To: David Birkholz, Office of Energy Security, Minnesota Department of Commerce

Project: CAPX2020 Fargo to St. Cloud Route

Docket: E002/TL-09-1056

Question: With regards to the prospect of the utilization of under-grounding in the CAPX2020 Fargo to St. Cloud Route, particularly in the constrained area in and around Avon, MN, could you please provide us with the following:

1. Please describe every transmission line that has been routed underground (i) in the Applicant's service territory and, (ii) to the degree known to Applicant, in any area within the United States. For any such transmission line, please state:

a) the endpoints and location of the transmission line;
b) the voltage of the transmission line;
c) the length of the transmission line;
d) the date when it was constructed;
e) the total cost of the project and the incremental cost, if any, for locating the transmission underground;
f) how the costs of the line were treated, including whether any incremental costs of locating the transmission line underground were rate based or assessed to a particular community, and whether the transmission line was classified as a "special" or "standard" facility.
g) the factors, including but not limited to safety codes, local land use, development density, environmental conditions, or utility practices by which it was determined that the transmission line was or was not subject to a local surcharge.

2. Please provide a map or maps depicting the location of any underground transmission lines described in Part A.

Sincerely,

Scott Hylla
Chairman, NoRCA

MIDTOWN GREENWAY COALITION INFORMATION REQUEST

☐ **Non Public Document – Contains Trade Secret Data**
☐ **Public Document – Trade Secret Data Excised**
☒ **Public Document**

Xcel Energy

Docket No.: OAH 15-2500-20599-2
PUC No. E-002/TL-09-38

Response To: Midtown Greenway Coalition Information Request No. 26

Date Received: December 4, 2009

Question:

A. Please describe every transmission line that has been routed underground (i) in Applicant's service territory and, (ii) to the degree known to Applicant, in any urban area within the United States. For any such transmission line, please state:

a) the endpoints and location of the transmission line;
b) the voltage of the transmission line;
c) the length of the transmission line;
d) the date when it was constructed;
e) *[no request - consistent with original]*
f) the total cost of the project and the incremental cost, if any, for locating the transmission underground;
g) how the costs of the line were treated, including whether any incremental costs of locating the transmission line underground were rate based or assessed to a particular community, and whether the transmission line was classified as a "special" or "standard" facility.
h) the factors, including but not limited to safety codes, local land use, development density, environmental conditions, or utility practices by which it was determined that the transmission line was or was not subject to a local surcharge.

B. Please provide a map or maps depicting the location of any underground transmission lines described in Part A.

Response:

A. (i)

a) *See Table 1*
b) *See Table 1*
c) *See Table 1*
d) *See Table 1*

Table 1 – MCG IR No. 26 Underground Transmission Facilities – Xcel Energy North							
Description	**Voltage**	**Cable Type**	**Length (Miles)**	**Conductor Size**	**Insulation**	**Installation**	**Underground Termination Location**
Aldrich to West River Road	115kV	HPFF	1.60	2000 CU	PLP	1960's / 1990's	West River Substation and Aldrich Substation
Aldrich to West River Road	115kV	HPFF	1.60	2000 CU	PLP	1960's / 1990's	West River Substation and Aldrich Substation
Elliot Park to Main Street	115kV	HPFF	0.45	3000 CU	paper	1980's	Elliot Park Substation and 'spider structure' #3 (West River Parkway & 11th Ave. So., Minneapolis)
Elliot Park to Southtown	115kV	HPFF	0.73	3000 CU	paper	1980's	Elliot Park Substation and structure #24 (19th Ave. on north side of I-94, Minneapolis)
Elliot Park to Riverside	115kV	HPFF	0.45	3000 CU	paper	1980's	Elliot Park Substation and 'spider structure' #3 (West River Parkway & 11th Ave. So., Minneapolis)
Fifth St. to Aldrich	115kV	HPFF	0.90	2000 CU	paper	1960's	Fifth Street Substation and structure #32 (Chestnut Service Center, Minneapolis)
Fifth St. to Riverside	115kV	HPFF	0.72	2000 CU	paper	1960's	Fifth Street Substation and structure #31 (1st Street No. & 3rd Ave. No., Minneapolis)
Fifth St. to Main St.	115kV	HPFF	0.72	2000 CU	paper	1960's	Fifth Street Substation and structure #31 (1st Street No. & 3rd Ave. No., Minneapolis)

Table 1 – MCG IR No. 26 Underground Transmission Facilities – Xcel Energy North							
Description	**Voltage**	**Cable Type**	**Length (Miles)**	**Conductor Size**	**Insulation**	**Installation**	**Underground Termination Location**
Goose Lake to Hugo	115kV	Extru Diel	0.90	1250 CU	XLPE	1990's	Structure #606 (Hwy #61 & 8th Street, White Bear Lake) and Structure #607 (Hwy #61 & Hwy #96, White Bear Lake)
East Bloomington to Airport	115kV	Extru Diel	0.28	3200 CU	XLPE	2000's	East Bloomington Substation and Structures #85 & 85A (Metro Drive east of Metro Parkway, Bloomington)
East Bloomington to Wilson	115kV	Extru Diel	0.68	2-3200 CU	XLPE	2000's	East Bloomington Substation and Structures #92 & 92A (American Boulevard & Thunderbird Road, Bloomington)
East Bloomington to Future	115kV	Extru Diel	0.28	3200 CU	XLPE	2000's	East Bloomington Substation and Structures #85 & 85A (Metro Drive east of Metro Parkway, Bloomington)
Dome Tap to Loon Lake Tap	115kV	Extru Diel	0.38	2500 CU	XLPE	1980's / 2000's	Structures #515 and #517 (south of Mankato Airport)
Angus Anson to Split Rock	115kV	Extru Diel	0.15	1750 CU	XLPE	2000's	Split Rock Substation and Structure #2 north of Split Rock Substation
Total Transmission Miles			**9.84**				

Table 1 – MCG IR No. 26 Underground Transmission Facilities – Xcel Energy North							
Description	**Voltage**	**Cable Type**	**Length (Miles)**	**Conductor Size**	**Insulation**	**Installation**	**Underground Termination Location**
kV - Kilovolt HPFF – High Pressure Fluid Filled (Pipe Type) Cable CU - Copper PLP – Polypropylene Laminated Paper XLPE – Cross-Linked Polyethylene Extru Diel – Extruded Dielectric							

e) *[no request - consistent with original]*

f) Many of these projects were constructed years ago and cost information is no longer available. For more recent projects, incremental cost difference is not tracked when the line is constructed underground for land use designation reasons such as Federal Aviation Administration (FAA) requirements. To the best of Northern States Power Company's, a Minnesota corporation (Xcel Energy), knowledge, none of the underground facilities identified in the above chart involved any incremental cost analysis.

g) As noted in response to subpart F, Xcel Energy has limited information available regarding the historical costs of existing underground facilities. It is Xcel Energy's understanding that none of the 13 underground segments was paid for through the CRFS mechanism which has only been used for distribution facilities.

h) Aldrich to West River Road – No information available.
Elliot Park to Main Street – No information available. Elliot Park to Southtown – No information available. Elliot Park to Riverside – No information available.
Fifth St. to Aldrich – No viable overhead route.
Fifth St. to Riverside – No viable overhead route.
Fifth St. to Main St. – No viable overhead route.
Goose Lake to Hugo – No viable overhead route.
East Bloomington to Airport – No viable overhead route.
East Bloomington to Wilson – No viable overhead route.
East Bloomington to Future – No viable overhead route.
Dome Tap to Loon Lake Tap – No viable overhead route.
Angus Anson to Split Rock – No viable overhead route.

A. (ii)

a) Electric utilities in the United States do not typically share publicly detailed information about underground transmission lines. This information is considered confidential because of concerns for system safety. As a result of these concerns, specific information about transmission line costs not owned by Xcel Energy is not available. Generally, insulated cable (underground transmission lines) is most often used where right of way is at a premium such as in high population density areas, or where engineering requires it such as in certain water crossings. Table 2 summarizes publicly available information on recent underground transmission projects outside of Xcel Energy's service territory. This information is from an Edison Electric Institute publication.

b) Underground cables are in service up through 345 kV in the United States and up through 500 kV worldwide.

c) There are roughly half a million miles of transmission in the US, of which Xcel Energy owns 5 Percent. There are roughly a thousand miles of solid dielectric transmission

cable in the US, of which Xcel Energy owns 1 percent. Roughly half of the United States mileage is comprised of installations less than a mile to avoid splices.

d) The first insulated transmission cable in the United States was installed in Cleveland in 1923 (66 kV).

Table 2 – MCG IR No. 26 Underground Transmission Facilities – Outside of Xcel Energy Service Territory							
Description	**Voltage**	**Cable Type**	**Length (Miles)**	**Conductor Size**	**Insulation**	**Installation**	**Underground Termination Location**
Northeast Utilities, Glenbrook Cable Project	115 kV	Unknown	~ 8.7	Unknown	Unknown	2008	Existing Norwalk Substation in Norwalk to existing Glenbrook Substation in Stamford, Connecticut
Western Massachusetts Electric Company, Springfield Cables Project	115 kV	Unknown	~ 7.7	Unknown	Unknown	2008/2009	Existing Breckwood Substation to existing East Springfield Substation in Springfield, Massachusetts area
FPL Group, Inc., Overtown – Venetian 138 kV Project	138 kV	Unknown	~ 4	Unknown	Unknown	2008	Under Biscayne Bay from mainland Miami to southern Miami Beach
Consolidated Edison Company of New York, M29 Transmission Project	345 kV	HPFF	~ 9.5	Unknown	Unknown	Anticipated to be in service in 2010	Existing Con Edison Sprain Brook Substation in the City of Yonkers to new Academy Substation in Manhattan
ITC Holdings Corp, Bismarck – Troy 345 kV Project	345 kV	Unknown	~ 11	Unknown	Unknown	Construction commenced 2008	Existing Bismarck Station to existing Troy Station in Detroit metro area

Table 2 – MCG IR No. 26 Underground Transmission Facilities – Outside of Xcel Energy Service Territory							
Description	**Voltage**	**Cable Type**	**Length (Miles)**	**Conductor Size**	**Insulation**	**Installation**	**Underground Termination Location**
Oncor Electric Delivery Company, LLC, West Levee Switching Station – Norwood Switching Station 345 kV Transmission Line Project	345 kV	Unknown	~ 0.7	Unknown	Unknown	Anticipated to be in service in 2010	The 0.7 mile underground segment exits the existing West Levee Substation. Undergrounding is contingent on City of Dallas paying 25 percent of the additional costs incurred to install segment underground
This information is summarized from Edison Electric Institute, *Transmission Projects: At a Glance* (Jan. 2008), *available at* http://www.eei.org/ourissues/ElectricityTransmission/Documents/Trans_Project_lowres.pdf. It is anticipated that Edison Electric Institute will publish an updated version of this publication in 2010.							

c) *[no request - consistent with original]*

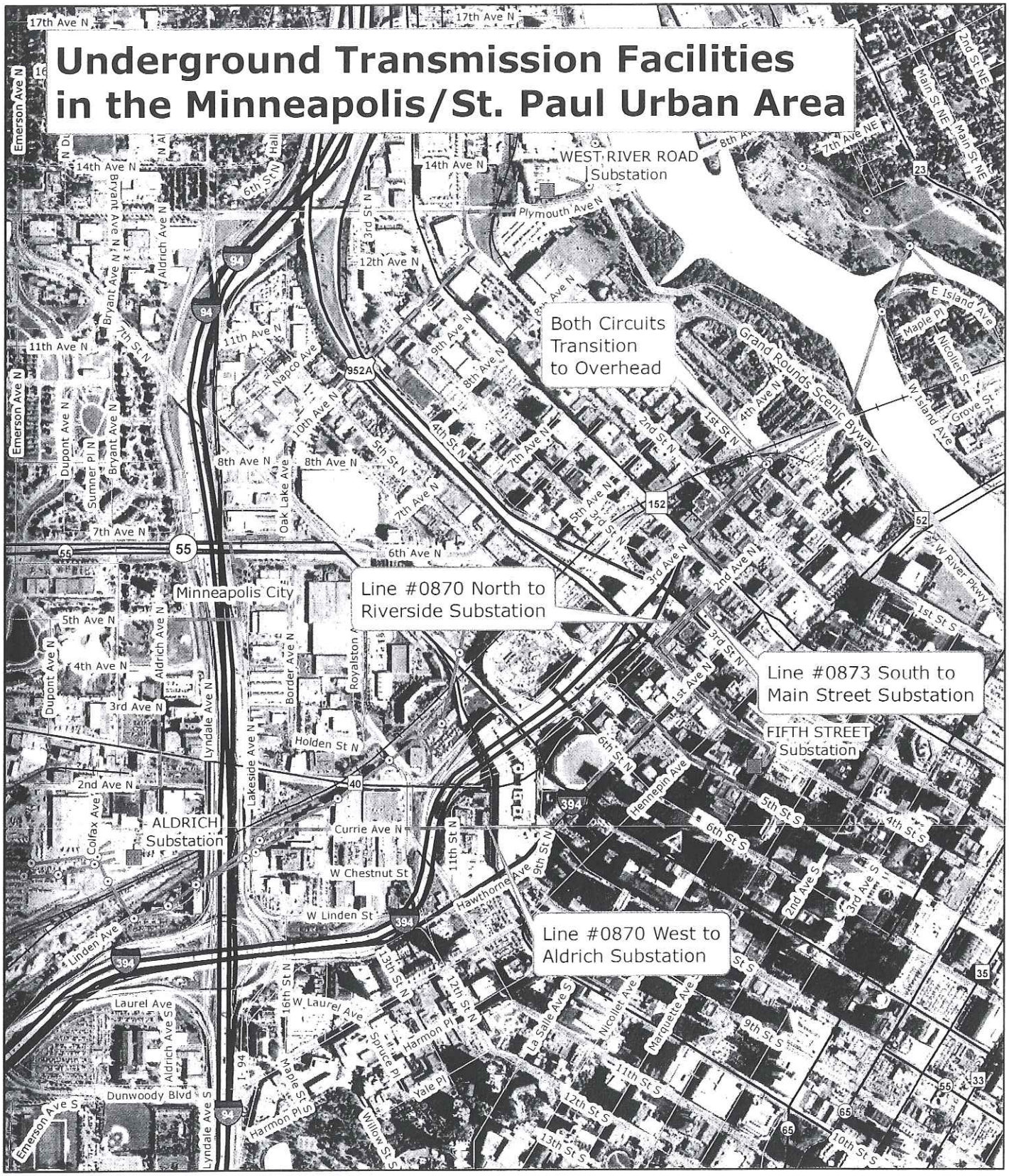
f) A rule of thumb is that undergrounding increases construction cost by a factor of 10 times, depending on the right of way available. Estimated costs on the underground portion of the Chisago project currently being built put the price of underground at about $100/inch, it is a 161 kV line and it located on either side of the St. Croix River in the Saint Croix National Scenic Riverway, near Taylors Falls, Minnesota. Taylors Falls is approximately 55 miles northeast of Minneapolis, MN.

g) Xcel Energy does not possess this data. The payment mechanism decision for underground transmission would reside within each individual utility.

h) Xcel Energy is not aware of the specific factors that led to undergrounding the facilities identified in the list above.

B. Please see the attached figure depicting underground transmission facilities in the Twin Cities Metropolitan area.

Response By:	Ben Gallay
Title:	Specialty Engineer
Department:	Transmission Engineering
Date:	12/29/09


Underground Transmission Facilities in the Minneapolis/St. Paul Urban Area
WEST RIVER ROAD Substation
Both Circuits Transition to Overhead
Line #0870 North to Riverside Substation
Line #0873 South to Main Street Substation
Line #0870 West to Aldrich Substation
FIFTH STREET Substation
ALDRICH Substation
Minneapolis City
Grand Rounds Scenic Byway
17th Ave N
14th Ave N
11th Ave N
8th Ave N
7th Ave N
6th Ave N
5th Ave N
4th Ave N
3rd Ave N
2nd Ave N
Plymouth Ave N
12th Ave N
Holden St N
Currie Ave N
W Chestnut St
W Linden St
Hawthorne Ave
Laurel Ave
W Laurel Ave
Dunwoody Blvd
Linden Ave
Hennepin Ave
Emerson Ave N
Emerson Ave S
Aldrich Ave N
Aldrich Ave S
Bryant Ave N
Dupont Ave N
Sumner Pl N
Oak Lake Ave
Lakeside Ave N
Lyndale Ave N
Lyndale Ave S
Colfax Ave
Border Ave N
Royalston
Napco Ave
Harmon Pl
Spruce Pl
Yale Pl
Willow St S
Nicollet Ave
La Salle Ave S
Marquette Ave S
Main St NE
2nd St NE
7th Ave NE
E Island Ave
W Island Ave
Maple Pl
Nicollet St
Grove St
W River Pkwy
1st St S
2nd St S
3rd St S
4th St S
5th St S
6th St S
9th St S
11th St S
12th St S
13th St S
10th St S
1st St N
2nd St N
3rd St N
4th St N
5th St N
6th St N
7th St N
8th St N
9th St N
10th St N
11th St N
12th St N
13th St N
16th St N
I-94
94
55
394
40
952A
152
52
23
35
33
65
Transmission Lines
115 kV - Overhead
115 kV - Underground
Above Ground Structures
Substation
Xcel Energy
Open Water
Transportation
Interstate
US Highway
State Highway
County Highway
Railroad
Scenic Byway
0 0.125 0.25
Miles
N
Rev. 12-22-09

NoRCA PRIMARY POWERLINE IMPACTS ANALYSIS

1) **Minnesota's Policy on Non-Proliferation** – This policy, established by PEER vs MEQC, 1978, creates a preference for placing new transmission lines near existing infrastructures, as a way to minimize the proliferation of new corridors through the utilization of existing railroad and highway, including interstate, rights-of-way, as well as any existing transmission corridors. The "rural-nature" of the proposed CAPX2020 Preferred "North Route" violates Minnesota's Policy on Non-proliferation through the extensive utilization of agricultural field and parcel lines.

North Routes Analysis of *Proliferation of New Transmission Corridors			
North Route	**Total Length (miles)**	**Total *Proliferation (miles)**	**% *Proliferation of Route**
Preferred	39	16	42%
Alternate A	42	14	33%

*Proliferation refers to use of agricultural field and parcel lines & not paralleling existing Rights of Way in route design

The utilization of established or pre-existing infrastructure would minimize the impact of new HVTL intrusion by limiting its effects to those who are already accustomed to living in an existing corridor or Right of Way. The utilization of a pre-existing infrastructure would also limit the impact on Minnesota's natural resources and preclude those landowners directly affected by the Preferred and Alternate A North Routes from having to suffer the burden of additional powerline easements in the future, according to the principles of non-proliferation.

A significant portion of the North Routes are currently "undisturbed", the construction of a 175 foot, 345kV HVTL would create tremendous visual and aesthetic pollution in this rural setting.

2) **Adverse Effects on the North Route's Natural Resources** – Since the proposed CAPX2020 Preferred and Alternate A North Route's traverse the rural landscape of Central and Northern Stearns County, a multitude of sensitive environmental ecosystems are at-risk. NoRCA has identified and quantified numerous lakes, wetlands, Mature Woodlots (Maple. Oak Basswood, etc.), Unique Woodlots (Tamarac), Streams and Rivers and various wildlife species that will be harmed in the process. NORCA has identified the following Scientific & Natural Areas, as well as other ecologically-sensitive natural resources:

   - **St. Wendel Bog SNA** - The St. Wendel Tamarack Bog SNA has been identified as one of the top two sites for Significant Biological Diversity in Stearns County. The site is a large wetland complex, which encompasses one of the largest remaining blocks of native vegetation in the county. This SNA supports the best and largest example of Minerotrophic Tamarack Swamp in central Minnesota. The proposed CAPX2020 Preferred and Alternate A North Routes intersect this rare wetland area in the northwestern portion of its route.

See Attachment 1

- **Avon Hills Forest SNA** - Avon Hills Forest SNA is situated on the rolling hills of the St. Croix Moraine, deposited by the glaciers 10,000 years ago, and dotted with wet depressions, pot holes and lakes. The SNA contains large tracts of oak forest, forested swamp, marsh, and sedge meadow native plant communities. Two species of rare birds that only inhabit large forests occur here: cerulean warblers and red-shouldered hawks. The natural plant communities together with the hills, lakes, and streams, combine to create the lovely scenery and diverse wildlife habitat for which the area is known.

See Attachment 2

- **Shepards Lake** - The proposed CAPX2020 Preferred North Route intersects a wetland known as Shepards Lake in Brockway Township. Shepards Lake was once a shallow lake "drained" to enhance its agricultural utility in the 1930's. An Environmental Lake, Shepards Lake is classified as a DNR Protected Waters, with a 1,000 foot shoreland buffer. The Shepards Lake Association, in conjunction with the US Fish and Wildlife, is working to restore Shepards Lake to enhance the waterfowl management in Stearns County. Shepards Lake is an ecosystem in itself and home to several wildlife species. The construction of an HVTL through Shepards Lake jeopardizes the restoration project by compromising the concept of conservation.

See Attachments 3, 4, 5

- **Birch Lakes State Forest** - Birch Lake State Forest is one of the smallest state forests in Minnesota, but also among the most intriguing. It is located in the transition zone between Minnesota's forested region to the northeast and the prairie region to the southwest. The proposed CAPX2020 Alternate A North Route would traverse this area along County Road 17 in Northwestern Stearns County.

See Attachment 6

In addition, the following central Minnesota lakes will be directly affected:

Freeport Lake
Big Birch Lake
Little Birch Lake
Tamarac Lake
Pine Lake
Big Pelican Lake
Shepards Lake
Watab Lake

The construction of the proposed HVTL through the countryside of Central and Northern Stearns County would, impair, pollute and destroy significant natural resources. These natural resources are important to all Minnesotans and are utilized extensively both for agricultural and recreational purposes. The numerous

lakes, wetlands, mature & unique woodlots, Streams & Rivers and diverse wildlife are natural resources protected by the Minnesota Environmental Protection Act. With this in mind, the "taking" of these natural resources utilizing eminent domain in Central and Northern Stearns County causes non-compensable damages to the landowners and all residents of Minnesota.

3) **Adverse Effect's on Minnesota's Historic Properties** – Minnesota is proud of its rich agricultural heritage. The Minnesota Historical Society has documented the importance of agriculture: "Agriculture has played a major role in the settlement, growth and development of Minnesota. The vast, inexpensive and fertile land of the state drew immigrants to prairies; milling provided the economic basis for the establishment and boom of the Twin Cities and grain provided the main cargo for the railroads; new approaches to farm economy (such as cooperatives) bloomed here and so did new political movements. While the number of people engaged in agriculture has declined over the last century-in Minnesota and in every other state - farmers, farming, and agriculture-related business remain important elements of the economic, social and political landscape".

   Acknowledging a way of life and the heritage of a community is an important aspect of historic preservation. While historic preservation efforts have primarily focused on historic structures and residences, there is considerable interest in the importance of land stewardship and the impact of our heritage on how we view preservation and what we want to preserve. The Century Farms program, administered by the Minnesota Farm Bureau and the Stearns County History Museum, recognizes family farms with a hundred-year history. These Century farms are represented in a database documented and maintained by both organizations. To qualify as a Century-farm, the Stearns History Museum, the Minnesota Farm Bureau and Minnesota State Fair Century Farm program honors Minnesota families that have owned their farms for at least 100 years, are at least 40-50 acres in size and are currently involved in agricultural production. Since the Minnesota Farm Bureau program began in 1976, around 8,500 farms in Minnesota have been recognized as Century Farms.

   NoRCA has exhaustively researched the Minnesota Farm Bureau and Stearns History Museum Century Farms programs, and has identified 40 documented Century-Farms and 1 Sesquicentennial Farm (150 years) that are directly affected by the CAPX2020 proposed Preferred and Alternate A "North" Routes in Stearns County. ***See Attachment(s) 7***

   The CAPX2020 North Routes will compromise the heritage and preservation of the family farm, particularly the Century Farms that hold historical significance in Stearns County and Minnesota. The proposal of 175 foot, 345 KV High Voltage Transmission lines threatens the integrity of the family farms and the natural character of the property.

   NoRCA has recently submitted a request for a Section 106 Review, in accordance with the Advisory Council on Historic Preservation (ACHP) and national historic preservation policy, on the effects of 4 federal agencies potential actions on

century farms as historic properties in our area, as part of the CAPX2020 project. The federal agencies include; Federal Highway Administration, US Department of Agriculture, US Army Corps of Engineers and US Fish & Wildlife.

NoRCA SECONDARY IMPACT ISSUES ANALYSIS

1) **Aesthetic and Visual Pollution** – The towers supporting CAPX2020 transmission line are 175-foot, galvanized, single pole structures. The galvanized, single poles of the tangent structures range 3-4 feet diameter, with corner structures ranging 4-5 feet in diameter. The right-of-way, which measures 150 feet in width, is frequently cleared of all vegetation except grass or other low-growing plants. Depending upon topography, forests, and other factors a transmission line may be visible from a distance of three miles or more. In fact, those who study the effect of new transmission lines on views commonly begin their analysis three miles out. Such a scene detracts from the scenery of an otherwise natural view in a rural, undisturbed environment.

2) **Adverse Effects on Home and Property Value** – Several studies indicate a negative impact from HVTL's on Property Values. The changes can reflect a range between a 6.3 - 53.8% reduction in the value of property's adjacent to an HVTL. In an article published in the Journal of Real Estate Research, appraisers indicated residential property values can be affected to varying degrees by transmission lines and that market values of these properties is, on average, 10.01% lower than the market values for comparable properties not subject to the influence of HVTL's,

3) **Health and Human Effects (ElectroMagnetic Fields) -** There is a growing consensus that the electromagnetic field (EMF) emitted by transmission lines pose a genuine health threat. In 2006 the State of Maryland concluded: *"Studies have consistently shown increased risk for childhood leukemia associated with ELF magnetic fields..."* A 2005 study conducted in England and Wales showed that one out of every hundred or so cases of childhood leukemia occurring within 2,000 feet of a high-voltage.

   Dr. David Carpenter, Director, Institute for Health and the Environment at the University of Albany, New York, an expert in the areas of EMF's, in a testimony to the State of Minnesota, Public Utilities Commission, indicated a STATISTICALLY SIGNIFICANT association between EMF/ELF and Childhood Leukemia. In addition, Dr. Carpenter also references a study indicating a Dose-Dependent relationship of EMF's to Childhood Leukemia, demonstrating that children living less than 200M vs. 600M from a HVTL possess a 69% increase in rates of Childhood Leukemia.

   In adults, Dr. Carpenter references evidence for a relation between EMF exposure and adult cancer and neurodegenerative diseases is "sufficiently strong".

4) **Adverse Effects on Agricultural Operations and Livestock** - Due to the rural nature of the proposed Preferred and Alternate A "North" Routes, agricultural operations will undoubtedly be significantly affected. Primary agricultural production crops include corn, soybeans, oats, wheat, sugar beets, and alfalfa/hay. Primary livestock found within the Preferred and Alternate A "North" Routes include dairy cattle, beef cattle, sheep, swine and poultry. The permanent impacts associated include pole placement, while temporary impacts during construction

may include soil compaction, disruption of agricultural practices (e.g., center pivot irrigation) and crop damages within the right-of- way at proposed structure location, locations of permanent access, and other work areas. While farmers will be compensated for their loss of productive agricultural land, the loss of productive land, in and of itself, can have lasting effects on a farm's overall production in future years. There are also "nuisance effects", such as the induced charges in electric fence lines and vehicles building electric charges directly under HVTL's. In addition, CAPX2020 does not recommend refueling of vehicles directly under HVTL's. An attempt to avoid Center-Point Pivot Irrigation systems has been undertaken, but at least 3 Center-Point Pivot Irrigation systems have been identified along the North Routes which have not been identified in Appendix B of the CAPX2020 Fargo to St. Cloud Route application.

There is also growing evidence to suggest the negative effects of HVTL's and EMF's on milk production and animal behavior. In 2004, the 12th International Conference on Production Diseases in Farm Animals, Michigan State University cited several examples of decreases in milk production of up to 50%. Dairy farmers have experienced the problem of cows dancing, stepping, tail-switching, and kicking off milkers, resulting in incomplete milking, declining milk production, and impaired health performance.

4) **Other Impacts and Considerations** – According to the database of landowners directly affected by the Preferred and Alternate A "North" Route's; over 440 households are affected by the routes. When Stearns County statistics are applied, the total persons (1,165) directly affected by the proposed routes would approximate a city the size of Avon, Mn (1,242). In adding the population of those persons affected indirectly, contiguous landowners, by the Preferred and Alternate A "North" Routes, the overall population affected would increase an additional 30-55%.

With regards to the Proliferation of new Transmission corridors, the following breakdown of currently proposed routes outlines the relative percentage of the routes compliance with Minnesota's Policy on Non-proliferation:

% of Routes utilizing existing corridors (roads, highways, transmission lines)	
Preferred North Route	58%
Alternate South Route	77%
Alternate A North Route	67%

I-94 data pertaining to the possible routes compliance with Minnesota's Policy on Non-Proliferation is currently unavailable due to the routes exclusion from the CAPX2020 Fargo to St. Cloud route application.

Additionally, the proposed Preferred and Alternate A North routes are each longer in distance. According to the CAPX2020 Fargo to St. Cloud Route Application, the number of homes directly affected by the 1,000Foot Easements for both the proposed Preferred and Alternate A North routes is substantially higher than the alternate route.

proposed Preferred and Alternate A North routes is substantially higher than the alternate route.

Route length's & # of homes affected within the proposed 1,000 foot easement		
Route	**Length (miles)**	**# of homes**
Preferred North Route	**39**	**112**
Alternate South Route	**35**	**77**
Alternate A North Route	**42**	**120**

It should also be noted that at least 11 additional homes in the Preferred and Alternate A Routes have been identified within the proposed project easement areas that are not reflected in Appendix B of the CAPX2020 Fargo to St. Cloud Route Application. These homes were identified in the Brockway and St. Wendel Townships, with possibly several more in other areas affected by the North Routes. I-94 data pertaining to the possible routes length and number of homes affected is currently unavailable due to the routes exclusion from the CAPX2020 Fargo to St. Cloud route application.

In addition to the issues identified above, the **Stearns County Board of Commissioners** has submitted to the Minnesota Department of Commerce, Office of Energy Security, a strong preference to utilize Interstate 94 as the preferred CAPX2020 HVTL corridor. The study and utilization of Interstate 94 as an alternative from Freeport to South St. Cloud is also supported by the area's State Legislators and the Township Supervisors in Brockway and St. Wendel Townships.
See Attachment 8

NORCA Considerations pertaining to the STEARNS COUNTY COMPREHENSIVE PLAN

The Stearns County Comprehensive Plan provides a broad vision for its future through the year 2030. The Comprehensive Plan is a policy framework for land use and land use changes, public investments, infrastructure improvements and cross-functional relationships with municipalities within the county. The final version of the Stearns County Comprehensive Plan was adopted on March 4, 2008. The Stearns County Comprehensive Plan summarizes the status and issues confronting the county in the next 25 years.

Through its planning process, Stearns County recognizes Agriculture, particularly the dairy industry, as very important to the Stearns County economy. It also recognizes the St. Cloud metropolitan area, with the rapid population growth in the eastern portion of the county and the increased potential for land-use conflicts. Stearns County contains more farms than any other Minnesota county. However, those numbers are declining. With this in mind, sustaining agriculture resources and agricultural practices is perhaps the most prominent goal of the Stearns County Comprehensive Plan.

Of particular focus in Stearns Counties Comprehensive Plan are the issues pertaining to Land Use Planning. The official Stearns County Land Use Plan is included for reference: ***See Attachment 9***

NoRCA has identified a number of policy issues pertaining to the Stearns County Comprehensive Plan that will be affected by the proposed CAPX2020 Preferred and Alternate A North Routes. These policy issues relate primarily to Land-Use Planning:

Goal 1. Sustain agriculture as a desirable land use for the long term.
Objective 1. Nurture and preserve a sound agricultural economy.
Objective 2. Preserve highly valued farmland for agricultural pursuits.

According to the Prime Farmland Soils Survey and County Maps, the area which encompasses the North Routes possesses the *highest concentration of Prime Farmland Soils* in comparison to other areas of Stearns County. Sustaining agricultural resources is the most important goal of the County's Comprehensive Plan. The primary goal of the Agricultural Design Overlay is to limit Fragmentation of farms and agricultural areas, particularly prime farmland and farmland soils.
See Attachment 10

Goal 4. Sustain the current livability and diversity of Stearns County.
Objective 1. Recognize and respond to the differences in community needs and character, development patterns, and natural resources in different regions of the County.
Objective 2. Preserve and protect significant, unique or sensitive natural and scenic resources.
Objective 3. Respect and preserve architectural, archeological, and cultural history.

The significant, unique or sensitive natural resources affecting the North Routes have been addressed and will be addressed further in Goal 7. With regards to the preservation of the areas cultural history, the Stearns History Museum recognizes the county's agricultural heritage in its unique Century Farms Program. The concept of Century farms has been considered in other Stearns County Land Use applications, notably Land-fills and their principle locations. As discussed in the Primary Impacts section, NoRCA has identified 41 Century Farms that will be affected by the CAPX2020 North Routes. Additionally, the presence of an infrastructure, such as HVTL's, on this prime farmland alters the land-owners, particularly century-farmers, perceptions of their properties and creates additional threats to the preservation and conservation of these unique resources.

Goal 5. Use existing infrastructure and resources efficiently.
Objective 1. Coordinate infrastructure expansion with development; and encourage development where the infrastructure is adequate to serve that growth.
Objective 2. Provide public services and infrastructure that can be sustained over time.
Objective 3. Support the provision of joint services among jurisdictions.
Objective 4. Continue to educate people about the real cost of development.

The North Routes area, particularly the areas of Brockway and St. Wendel Townships, with their proximity to the St. Cloud Metropolitan area, possesses the potential for substantial land-use conflicts. With its Prime farmland, farmland soils and natural resources, this area is the extremely vulnerable to increased development and population growth. The Stearns County Comprehensive plan recognizes the value of the North routes area and addresses these concerns through a unique land-use planning mechanism. ***See Attachment 11***

Goal 7. Identify and preserve important natural systems and sensitive natural resources.
Objective 1. Evaluate land use changes based on how they respond to existing natural systems and their potential impacts on natural resources.
Objective 2. Develop and employ land use regulations and other techniques for natural resource protection, including transfer of development rights or density, best management practices, and public acquisition.
Objective 3. Recognize the relationship between land use and water quality, and continue to support water

See Attachment 12

Important Natural Resources have been discussed and the NoRCA Primary Impact Issues. Important Natural Resources identified utilizing County Biologic Survey and Native Plant Communities of Stearns County include:
Avon Hills Forest SNA
St. Wendel Bog SNA
Birch Lakes State Forest

Biologic and Native Plant Communities

The Proposed Preferred and Alternate A North Routes contain areas of Outstanding, High and Moderate Value biologic and native plant communities, primarily located in Brockway and St. Wendel Townships.
Native Plant Communities consist of significant Tamarack Swamp Minerotrophic and Seepage Subtypes, Willow Swamp and Open Wetlands.
See Attachment 13

Overall, the vegetation that comprises the North Routes varies greatly, the eastern portion is a combination of Upland Deciduous Forest, including Marschner's "Big Woods" and Aspen-Birch, and unique Coniferous Bogs. The Western portion of the North Routes consist of Brush Prairie and Prairie, interspersed with Wet Prairies.
See Attachment 14

Water Resources
Water Resources include significant and unique concentrations of NWI Palustrine wetlands, important in the diffusion and filtration of water, floodshed and its unique biological diversity. The area also contains several Recreational and Environmental Lakes, according to Shoreland Classification.
See Attachment 15

Conclusion
According to the Stearns County Comprehensive Plan, the area encompassing the proposed Preferred and Alternate A North Routes represent significant, unique and valuable agricultural, environmental and cultural resources. Stearns County's Land-Use planning suggests these are areas most vulnerable to development and has initiated specific guidelines in order to preserve these resources.

The Avon Hills Initiative, through their dedication to the land, its resources and the environment, serves as a preservation and conservation template for Stearns County. Through its conservation overlay, the Stearns County Comprehensive Plan refers to the Avon Hills Initiative as a "county pilot project, capable of being replicated in other areas of the county". The North Routes areas, with its unique features and resources, have the potential to replicate the works of the Avon Hills Initiative as its own agricultural and natural resource conservation district. As an organization, NoRCA wishes to partner with the Avon Hills Initiative to establish a preservation and conservation district within Stearns County.